

inSIGHT S12 Display Module

An incredibly versatile and compact display for any type of mobile machine.

Key Features

- Specially developed for use in mobile machines
- Robust yet lightweight aluminum die-cast housing for outdoor use
- Installation via clamping bracket or assembly with a standard ball holder
- High visibility display - easy to read in direct sunlight
- Super wide viewing angle - read from virtually any direction
- Touchscreen and short-travel keys with tactile feedback
- Key illumination in RGB
- Freely programmable in GSe-VISU and openSYDE



Display & Inputs

Display	Color TFT
Format	12.3 in (diagonal) 292 x 109.5 mm 8:3 ratio
Resolution	1920 x 720 pixel
Backlight	1000 nits (typical)
Contrast ratio	1100:1 (typical)
Viewing angle	170°
Cover lens	Mineral clear glass
Optical bonding	Yes
Keys	4 tactile illuminated short-travel keys + 1 rotary-push encoder
Key illumination	LED, RGB, individually controllable and dimmable
Touchscreen	Projected capacitive (PCAP)

Mechanical Specifications

Faceplate material	Aluminum, black anodized
Housing material	Aluminum die-cast, powder-coated
Dimensions (W x H x D)	341 x 166 x 52.2 mm
Installed (W x H)	326 (±0.5) x 158 (±0.5) mm
Weight	~4.6 lbs (~2100 g)
Assembly	Mounting with RAM®-Mount Panel mounting with clamping bracket
Protection class	IP65
Operating temperature	-22° – 158°F (-30° – 70°C)
Storage temperature	-22° – 176°F (-30° – 80°C)

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Electrical Specifications

Supply voltage	VCC 9... 32 VDC
Rated voltage	24 VDC
Power consumption	≤ 25 W (without external load)
Fuse	External (fuse value 4 A)
Processor	i.MX 8X (4x A35 + 1x M4) @ 900 MHz
Memory	1 GB RAM 8 GB Flash 8 kB FRAM
Interfaces (PN 100001339)	1x CAN-FD 1x Ethernet up to 1 GBit/s
Interfaces (PN 100001385)	3x CAN-FD 1x Ethernet up to 1 GBit/s 2x USB Host 2.0 Video IN 4 in 4 analog FBAS PAL/NTSC 1x Speaker-Out (mono) 1,5W 1x RS485 (option) 1x RS232 (option)
I/O	4x multifunctional inputs (digital / analog 0...10 VDC / analog 0...20 mA) 1x Ignition (KL15) 2x digital outputs (8...32 VDC / I _{max} =3A / diagnosable)

Additional Specifications

Temperature monitoring	Integrated sensor for measuring the device temperature
Supply voltage monitoring	Measuring circuit for monitoring the supply voltage
Brightness adjustment	Ambient light sensor in front panel for brightness adjustment of display and keys
Clock / battery	Real time clock (RTC), battery buffered (YR, M, D, W, WD, HR, MIN, SEC)
Wake-On-Key	When not in use (e.g. in the outdoor area of a machine), the operating device can be set to a sleep mode. Pressing any key for approx. 3s or rising edge at IGNITION input restarts the unit.

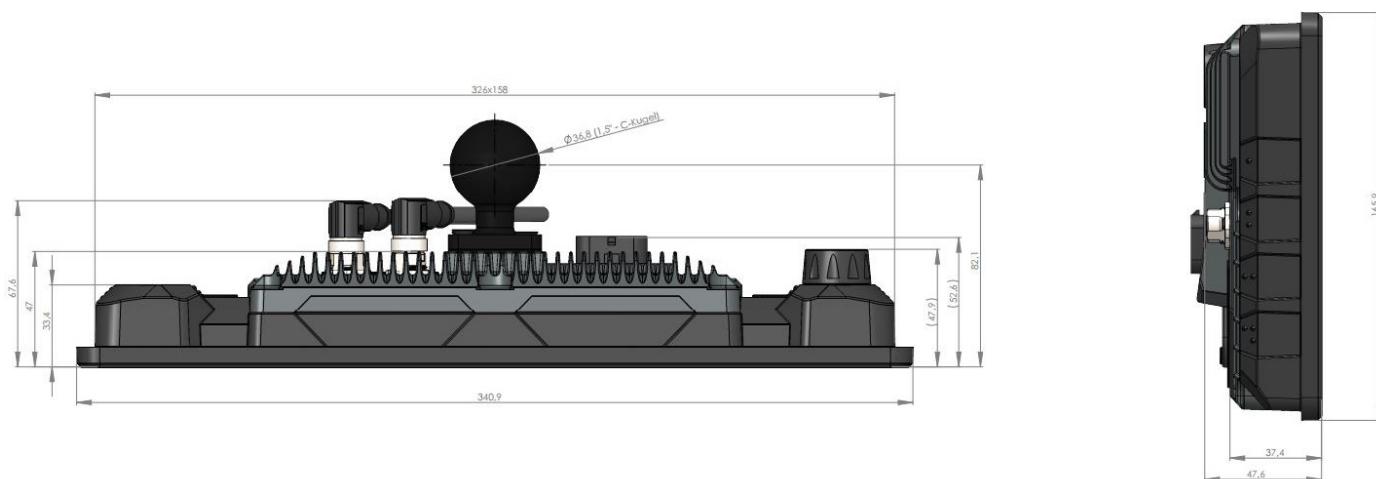
Part Numbers

PN 100001339	2x M12 + 1x CAN + Ethernet
PN 100001385	2x M12 + 1x CAN + Ethernet + 26p Connector + USB-C + microSD

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Product Dimensions

All dimensions are given in [mm]



Test Standards & Certification

CE mark	According to EMC Directive 2014/30/EU According to RoHS Directive 2011/65/EU
EMC	EN 61000-6-2:2019-11 Immunity for industrial environments EN 61000-6-3:2011-09 Emitted interference for residential areas EN 61000-4-2:2009-12 ESD, Level 4: 15 kV EN 61000-4-4:2013-04: Immunity transients (burst), level 4: 4kV EN 61000-4-5:2019-03: Surge immunity, level 3: 1kV
Load Dump	ISO 16750 Pulse 5b Level 3
Vibration	EN 60068-2-64:2020-09 random 8h per axis 10 ... 299 Hz: 1g 300 ... 499 Hz: 0.05g 500 ... 2000 Hz: 2g
Shock	EN 60068-2-27:2010-02 30g / 18ms: 5 shocks
Cold	EN 60068-2-1:2008-01 Test temperature -30°C / 2h
Dry heat	EN 60068-2-2:2008-05 Test temperature 70°C / 2h
Temperature change	EN 60068-2-14:2010-04 Test temperature -30°C ... +70°C: 20 cycles a 300min
Temperature shock	EN 60068-2-14:2010-04 Test temperature -30°C ... +70°C: 5 cycles a 120min
Damp heat	EN 60068-2-38:2010-06 Test Z/AD Test temperature 40°C/ 93%RH / 21 days

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Pin Assignment

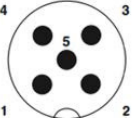
PN 100001339

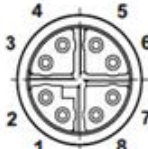
M12 A-coded 5 pin, male	Pin	Signal	Description
	1	Ignition 8...32 VDC	Ignition input (KL15)
	2	U _B 8...32 VDC	Power supply (KL30)
	3	GND	Ground
	4	CAN_H	CAN0 High
	5	CAN_L	CAN0 Low

M12 X-coded, 8 pin, female	Pin	Signal	Description
	1	MDX0+	Gigabit Ethernet MDX0+
	2	MDX0-	Gigabit Ethernet MDX0-
	3	MDX1+	Gigabit Ethernet MDX1+
	4	MDX1-	Gigabit Ethernet MDX1-
	5	MDX3+	Gigabit Ethernet MDX3+
	6	MDX3-	Gigabit Ethernet MDX3-
	7	MDX2-	Gigabit Ethernet MDX2-
	8	MDX2+	Gigabit Ethernet MDX2+

Pin Assignment

PN 100001385

M12 A-coded 5 pin, male	Pin	Signal	Description
	1	Ignition 8...32 VDC	Ignition input (KL15)
	2	U _B 8...32 VDC	Power supply (KL30)
	3	GND	Ground
	4	CAN_H	CAN0 High
	5	CAN_L	CAN0 Low

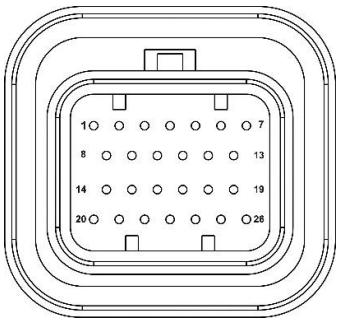
M12 X-coded, 8 pin, female	Pin	Signal	Description
	1	MDX0+	Gigabit Ethernet MDX0+
	2	MDX0-	Gigabit Ethernet MDX0-
	3	MDX1+	Gigabit Ethernet MDX1+
	4	MDX1-	Gigabit Ethernet MDX1-
	5	MDX3+	Gigabit Ethernet MDX3+
	6	MDX3-	Gigabit Ethernet MDX3-
	7	MDX2-	Gigabit Ethernet MDX2-
	8	MDX2+	Gigabit Ethernet MDX2+

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Pin Assignment

PN 100001385

TE Connectivity SUPERSEAL 1.0, 26 pin, Male	Pin	Signal	Description
	1	CAN2-FD_H	CAN2-FD High (Optional RS485_A / RS232_RX)
	2	CAN2-FD_L	CAN2-FD Low (Optional RS485_B / RS232_TX)
	3	GND	Ground
	4	CAN1-FD_H	CAN1-FD High
	5	CAN1-FD_L	CAN1-FD Low
	6	GND	Ground
	7	Ignition (KL15)	Ignition input (terminal 15)
	8	UB_DOUT*	Power supply 8...32 VDC for digital outputs
	9	DOUT0 (3A)	Digital output 0
	10	DOUT1 (3A)	Digital output 1
	11	Speaker -	Loudspeaker - (Optional LineOut L)
	12	Speaker +	Speaker + (Optional LineOut R)
	13	GND	Ground
	14	USB 5V	USB_VBUS (+5 VDC $I_{max}=500$ mA)
	15	GND	Ground
	16	MFIN0	Multifunction input 0
	17	MFIN1	Multifunction input 1
	18	VideoIN0	Analog video input 0
	19	UB	Power supply 8...32 VDC
	20	USB D+	USB Data+
	21	USB D-	USB Data
	22	MFIN2	Multifunction input 2
	23	MFIN3	Multifunction input 3
	24	VideoIN1	Analog video input 0
	25	VideoIN2	Analog video input 0
	26	VideoIN3	Analog video input 0

*(6A external fuse protection)